

Documentation of Environmental Indicator Determination

Interim Final 2/5/99

RCRA Corrective Action

Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Petrowax-Emlenton Facility (Quaker State)
Facility Address: Hill Street, Emlenton, PA 16373
Facility EPA ID #: PAD 00 433 7127

1. Has all available relevant/significant information on known and reasonably suspected releases to soil, groundwater (GW), surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

YE If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ If data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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2. Are groundwater, soil, surface water, sediments, or air, media known or reasonably suspected to be “contaminated”¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	<u>Rationale / Key Contaminants</u>
Groundwater	YE			Total Petroleum Hydrocarbon (TPH), Free Product (kerosene, jet fuel, fuel oil, and heavier oils), benzene, toluene, ethylbenzene, xylene (BTEX) and dissolved iron.
Air (indoors) ²		<u>NO</u>	<u> </u>	
Surface Soil (e.g., <2 ft)	YE			ethylbenzene, xylene and TPH.
Surface Water		<u>NO</u>	<u> </u>	
Sediment		<u>NO</u>	<u> </u>	
Subsurf. Soil (e.g., >2 ft)	YE			ethylbenzene, xylene and TPH.
Air (outdoors)		<u>NO</u>	<u> </u>	

_____ If no (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

YE If yes (for any media) - continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter “IN” status code.

Rationale and Reference(s): **a)** the “Assessment of Potential Risks” dated August 5, 1993; **b)** RCRA Compliance Evaluation Inspection, dated April 14, 1993; **c)** Environmental Indicator Inspection Report of July, 2001; **d)** the GW monitoring Report, dated February 3, 2000; **e)** Semi-annual GW Monitoring Progress Reports; **f)** GW monitoring Report dated February 3, 2000; and, **g)** analytical results of the GW monitoring, dated December, 1999.

The facility groundwater is contaminated with Free Product (kerosene, jet fuel, fuel oil, and heavier oils), BTEX (benzene, toluene, ethylbenzene, xylene), TPH (Total Petroleum Hydrocarbon), as well as some dissolved iron. The facility is pumping and treating groundwater on site since 1994. The existing on site Waste Water Treatment Plant is used for treatment of the contaminated Ground Water (GW). Treated GW is discharged to the Allegheny River under NPDES permit.

The GW at the site flows West toward the Allegheny River, at depths from 10 to 35 feet. Semi-annual GW monitoring is conducted at site. There are 18 GW monitoring wells and two (2) recovery wells (REC-1 & REC-2) on the site.

Based on the results of the 1992 investigation, the GW contamination at the facility was divided into two areas - the Northern and the Southern.

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According to the GW monitoring Report dated February 3, 2000:

Floating Free Product Thickness (in feet)					
North Area					
well	8-17-99	12-14-99	well	8-17-99	12-14-99
MW-1	0	0	MW-14	2.13	NM
MW-2	0.05	0.06	MW-15	1.11	NM
MW-5	0.28	0.27	MW-16	film	0.68
MW-6	2.52	0.61	MW-17	6.53	1.51
MW-7	0	0	MW-18	film	film
MW-11	0.93	0.84	REC-2	3.06	3.11
MW-13	1.24	1.21			
South Area					
MW-3	0.44	0.04	MW-10	0.07	4.24
MW-4	0	0	MW-12	0.27	2.41
MW-8	0	0	REC-1	0	0.01
MW-9	0	0			

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GW monitoring analytical results December, 1999							
	TPH (ppm).	BTEX				Arsenic	
		Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylene (ppb)	total (ppm)	dissolved (ppm)
MCL							
MW - 2	8900	2.9	ND	ND	4.2	0.076	0.061
MW - 6	140	ND	ND	ND	11	0.102	0.112
MW - 14	57	ND	ND	ND	ND	0.202	0.219
MW - 18	12	ND	ND	ND	ND	0.261	0.276
MW - 3	130	4300	ND	2500	7200	0.195	0.154
MW - 9	80	ND	ND	ND	ND	0.082	0.055
MW -10	160	5900	43	41	660	0.043	0.028

Currently two (2) total recovery systems are operating at the facility. All recovery systems were installed in accordance with the PADEP order of 1994. The facility has NPDES Permit to discharge treated water into the Allegheny River.

The facility occupies 50 acres adjacent to the Allegheny River on the western border of the town of Emlenton. The oil refining facilities operated on that land from 1890's until 1980 under different ownerships.

Since 1995 the facility had not generated hazardous waste. The wastewater generated from the process was sent for treatment in the on-site Waste Water Treatment Plant. Sludge from all production units was removed annually, and sent to the off-side landfill.

There are two sources of drinking water supply within a three-mile radius of the site - the Emlenton Public Water and private wells.

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According to the “Assessment of Potential Risks” dated August 5, 1993, “the only point of exposure ... to the BTEX and TPH detected in the GW would be the Allegheny River. Potential human exposure via swimming or ingestion of fish would pose insignificant levels of risk. Use of the Allegheny River water as a source of public sources of drinking water ... does not pose a significant risk to public health. ... Therefore, remediation of the BTEX and TPH detected in the shallow GW at the Petrowax, Pennsylvania facility would not be necessary for protection of public health and the environment under current conditions. ... Given the current land use, future residential development of the site and installation of private portable well at the site is unlikely, and the overall level of risk posed by the petroleum hydrocarbons detected in the GW is low.”

The facility soil is contaminated with ethylbenzene, xylene and TPH (Total Petroleum Hydrocarbon). Soils on the Northern Area of the facility is a fine sand with silt and clay; the Southern Area is underlain by the sand, silt, brick and rock fragments. During soil sampling event in May, 1993 ethylbenzene (730 ppb), xylene (4,300 ppb) and TPH (5,000 ppb) were detected. The 2001 soil sampling reported non-detectable benzene, low concentrations of some BTEX compounds (non-detected to 10 mg/kg), and TPH concentrations up to 5,700 mg/kg.

Footnotes:

1 “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based “levels” (for the media, that identify risks within the acceptable risk range).

2 Recent evidence (from the CO Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above contaminated groundwater than previously believed. While this is a rapidly developing field current evidence (1/99) suggest that indoor air in structures located above (and adjacent to) contaminated groundwater should not be assumed to be acceptable without physical evidence.

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3. Are there complete pathways between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential Human Receptors (Under Current Conditions)

“Contaminated” Media	Res.	Worker	Const.	Tresp.	Recreat.	Food3
Groundwater	<u> NO </u>	<u> NO </u>	<u> </u>			<u> </u>
Air (indoors)	<u> NO </u>	<u> NO </u>	<u> </u>			<u> </u>
Soil (surface, e.g., <2 ft)	<u> NO </u>	<u> NO </u>	<u> Y </u>	<u> </u>	<u> </u>	<u> </u>
Surface Water	<u> NO </u>	<u> NO </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Sediment	<u> NO </u>	<u> NO </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Soil (subsurface e.g., >2 ft)	<u> NO </u>	<u> NO </u>	<u> Y </u>	<u> </u>	<u> </u>	<u> </u>
Air (outdoors)	<u> NO </u>	<u> NO </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors’ spaces for Media which are not “contaminated”) as identified in #2 above.
2. enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“ ”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

 If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter “YE” status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

Y If yes (pathways are complete for any “Contaminated” Media - Human Receptor combination) - continue after providing supporting explanation.

 If unknown (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code

Rationale and Reference(s): **a)** the “Assessment of Potential Risks” dated August 5, 1993; **b)** RCRA Compliance Evaluation Inspection, dated April 14, 1993; **c)** Environmental Indicator Inspection Report of July, 2001; **d)** the GW monitoring Report, dated February 3, 2000; **e)** Semi-annual GW Monitoring Progress Reports; **f)** GW monitoring Report dated February 3, 2000; and, **g)** analytical results of the GW monitoring, dated December, 1999.

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4. Can the exposures from the complete pathways identified in #3 be reasonably expected to be “significant” (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

NO If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If unknown (for any complete pathway) - skip to #6 and enter “IN” status code

Rationale and Reference(s): **a)** the “Assessment of Potential Risks” dated August 5, 1993; **b)** RCRA Compliance Evaluation Inspection, dated April 14, 1993; **c)** Environmental Indicator Inspection Report of July, 2001; **d)** the GW monitoring Report, dated February 3, 2000; **e)** Semi-annual GW Monitoring Progress Reports; **f)** GW monitoring Report dated February 3, 2000; and, **g)** analytical results of the GW monitoring, dated December, 1999.

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5. Can the “significant” exposures (identified in #4) be shown to be within acceptable limits?

Y If yes (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be “unacceptable”)- continue and enter “NO” status code after providing a description each potentially “unacceptable” exposure.

_____ If unknown (for any potentially “unacceptable” exposure) - continue and enter “IN” status code

Rationale and Reference(s): **a)** the “Assessment of Potential Risks” dated August 5, 1993; **b)** RCRA Compliance Evaluation Inspection, dated April 14, 1993; **c)** Environmental Indicator Inspection Report of July, 2001; **d)** the GW monitoring Report, dated February 3, 2000; **e)** Semi-annual GW Monitoring Progress Reports; **f)** GW monitoring Report, dated February 3, 2000; and, **g)** analytical results of the GW monitoring, dated December, 1999.

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6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

YE Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **Petrowax-Emlenton Facility (Quaker State)** facility EPA ID # **PAD 00 433 7127**, located on the **western border of the town Hill Street, Emlenton, PA 16373** under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

Completed by (signature)
(print) Ioff, Victoria
(title) Remedial Project Manager

Date: 07-01-02

Supervisor (signature)
(print) Gotthold, Paul
(title) PA Operations Branch Chief
(EPA Region or State) EPA, Region 3

Date: 08-20-02

Locations where References may be found:

1650 Arch Street, 3WC22,
EPA files.

Contact telephone and e-mail numbers:

(name) Ioff, Victoria
(phone #) 215-814-3415
(e-mail) ioff.vickie@epa.gov

Final Note: The Human Exposures EI is a Qualitative Screening of exposures and the determinations within this document should not be used as the sole basis for restricting the scope of more detailed (e.g., site-specific) assessments of risk.

